HI-MILL MANUFACTURING CO.
FABRICATORS OF TUBE PRODUCTS AND GENERAL LIGHT MANUFACTURING
1704 HIGHLAND ROAD • HIGHLAND, MICHIGAN
TELEPHONE: 887-4191

April 7, 1978

State of Michigan
Dept. of Natural Resources
Water Quality Division
Pte. Mouille State Game Area
RFD #2
Rockwood, Michigan 48173

Attn: Mr. Roy Schrameck, P.E.

Re: Hi-Mill Manufacturing
Process Water Recycle System
Final Plans & Specifications

Dear Mr. Schrameck:

As per the discussion with members of the Water Quality Division and yourself, at the meeting in Lansing, on February 1, 1978, we are herewith submitting the Final Plans and Specifications for the elimination of process water discharges for the Hi-Mill Manufacturing Company located at 1704 Highland Road, Highland, Michigan 48031.

A separate letter was sent to Mr. Robert J. Courchaine for his files, as was suggested at the meeting.

Very truly yours,

HI-MILL MANUFACTURING COMPANY

Robert F. Beard

RFB:jp

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April 7, 1978

State of Michigan
Dept. of Natural Resources
Water Quality Division
Steven T. Mason Bldg.
P.O. Box 30028
Lansing, Michigan 48909

Attn: Mr. Robert J. Courchaine

Re: Hi-Mill Manufacturing Co.
Process Water Recycle System
Final Plans & Specifications

Dear Mr. Courchaine:

On February 1, 1978, representatives of the Hi-Mill Manufacturing Company located in Highland, Michigan met in Lansing with Mr. Roy E. Schrameck and other members of the Water Quality Division Staff.

The purpose of the meeting was to agree on a time frame by which Hi-Mill would eliminate certain water pollution problems. A schedule was suggested and a Consent Order was to be drawn up.

In an effort to expedite the processing of the submitted final plans it was suggested that a letter of notification be sent to you and the detailed plans be sent to Mr. Roy Schrameck. That is the course that we are following. We trust that this approach is satisfactory with your office.

Very truly yours,

HI-MILL MANUFACTURING COMPANY

Robert F. Beard

RFB:jp

HI-[illegible]L MANUFACTURING COMPANY

Final Plans and Specifications for the Proposed Total Process Water Recycle System

1. Manufacturing Operation:

Copper or Aluminum tubing of various sizes is shaped by forming machines, some configurations require brazing. The completed assemblies are sent to the etching room for chemical cleaning and brightening. The sequence is acid dip, rinse, brightener and final rinse. The cleaned parts are dried in an oven.

2. Total Recycle System:

The rinse water from the Aluminum etching line will be recycled in a closed loop with a cartridge filter to remove suspended solids, and a cation and anion ion exchange resin system to remove the other contaminants in the water.

The copper etching line rinse water is recycled by passing thru its own cartridge filter and cation and anion exchange resins. Each system is designed for a flow rate of 5 gpm.

The spent, concentrated acid and brightening solutions will [illegible] to be hauled away, as required, by a state licensed liquid hauler.

The water used in the brazing room will be recycled too. [illegible] machines drainage will be pumped into a tank, filtered and returned to the process.

3. Process Flow Sheets:

Cut Tubing To Length	Form Tubing As Required	Brazing As Required	Etching	Bright Dip	Drying
Inspection	Testing	Shipping			

4. Chemicals: Sulfuric Acid, Nitric Acid, Wyandotte BASF Alutone, BASF MF Acid Dubois D - Smut.

5. All etching and rinse tanks will hold 100 gallons of liquid.

Copper Acid Etch Solution:	12 gallons Sulfuric (35.6N) Acid. 6 gallons Nitric (15.8N) Acid 82 gallons water
Copper Bright Dip:	3 gallons Bi-Chromate 3 gallons Sulfuric (35.6N) Acid 80 gallons water
Aluminum Acid Etch Solution	25 gallons Nitric Acid (15.8N) 3 Shovels Salts (BASF MF Acid) 75 gallons of water.

Alu[redacted] 20% By Volume BASF Alutone
80% Water

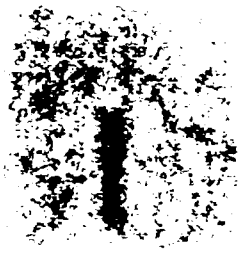
6. Schedule: Commence Construction - May 1, 1978

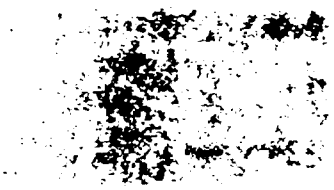
Complete Construction - June 30, 1978

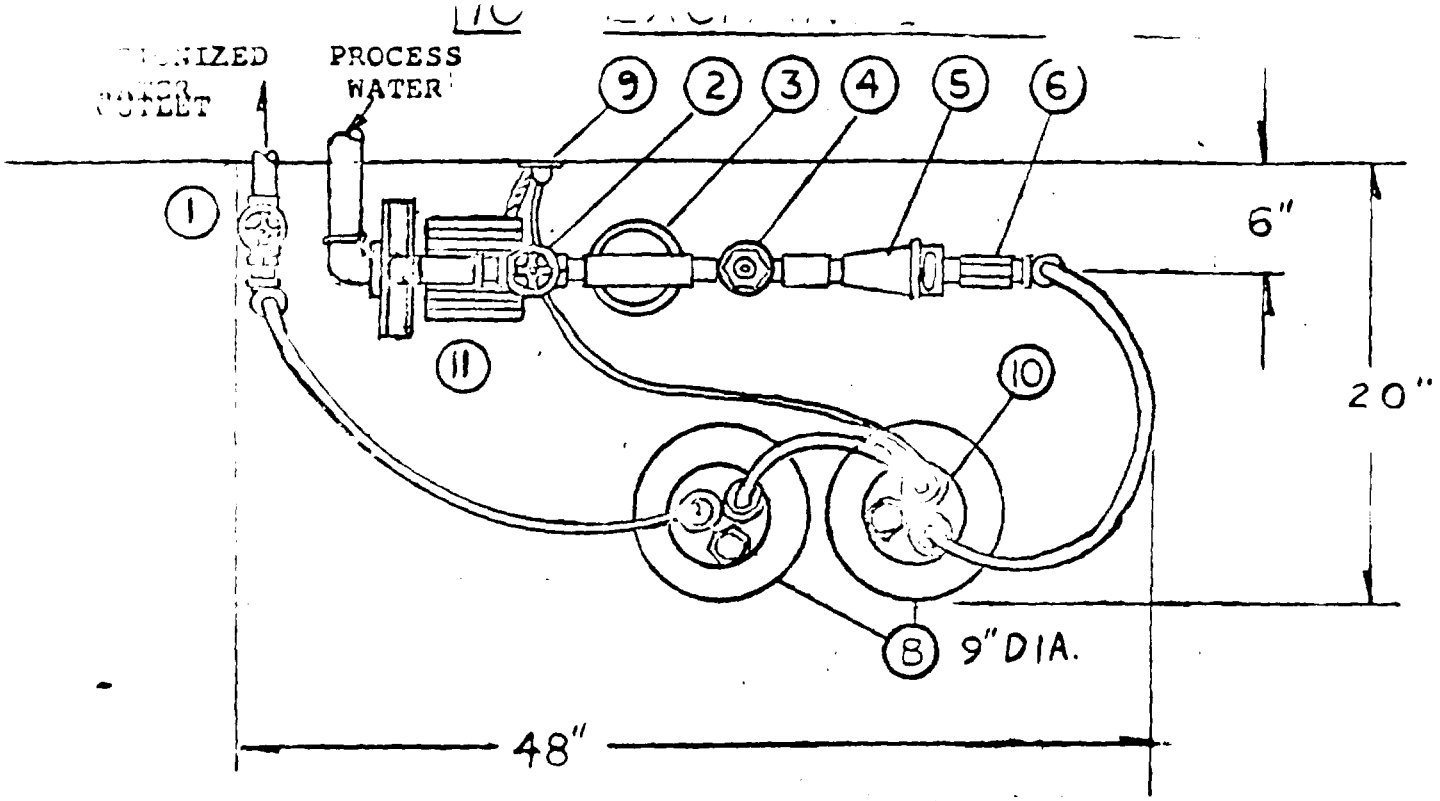
Attain Operational Status - August 1, 1978

7. The spent pickling solutions from the etching room will be pumped into portable containers such as acid drums and hauled away by a state licensed liquid waste hauler.

The pipelines from the building to the lagoon will be physically removed or plugged with concrete.





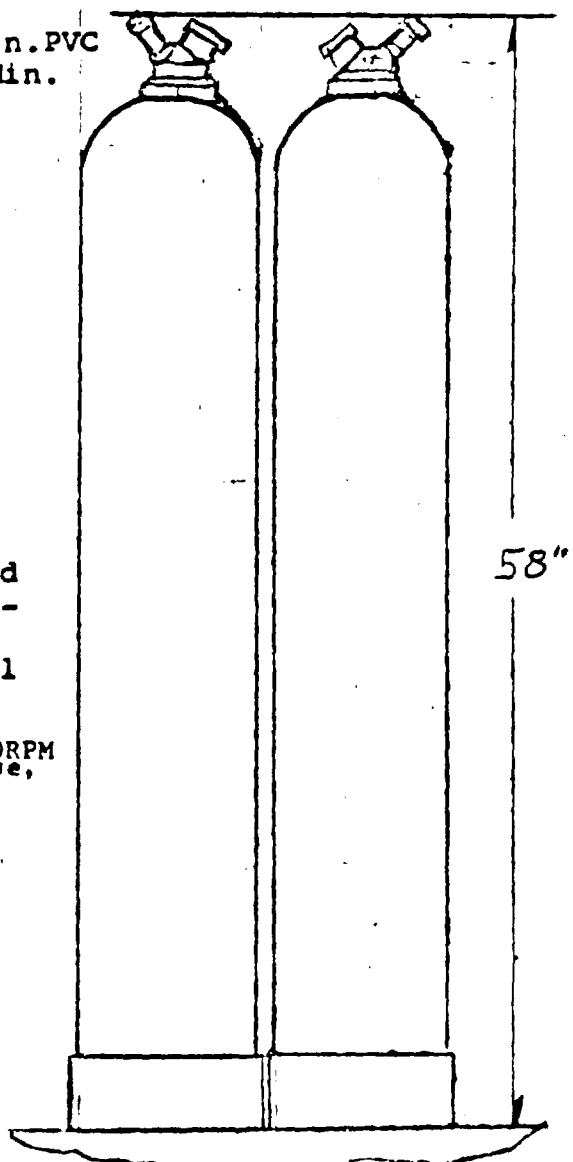


LEGEND

1. Line Stop (Valve) 3/4"Min.PVC
2. Line Stop (Valve) 3/4" Min.
3. Cartridge Filter
4. Pressure Reducing Valve 40 PSI (Max.)
5. Water Meter.
6. Flow Control
7. Model 2052 Organic Removal Filter(Optional) Model 2051 Mixed Bed Deionizer
9. 110 Volt AC Supply
10. Quality Control System (200K Min.)

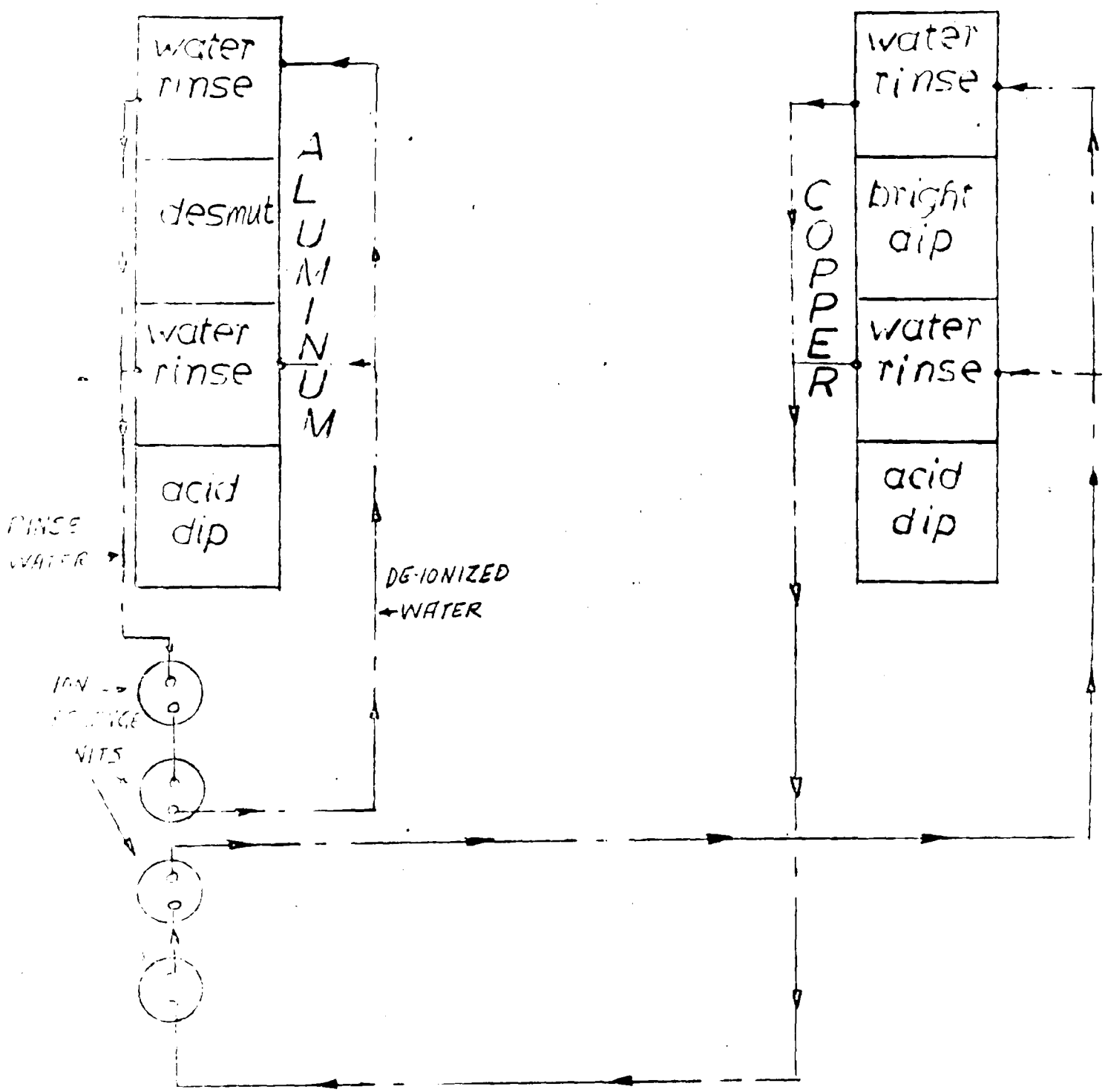
NOTE: TO USE SEPARATE BED RESINS, USE MODEL NO. 2054(Cation) and 2055 (Anion) deionizers instead of 8) Mixed bed Model 2051 deionizer tanks.

11. Motor & Pump. 1/2 HP, 1750RPM Stainless Steel, Single Phase, 115 Volt 5 GPM.



ATCON CORP.
Bruno Zane, PE
Feb. 17, 1978

ETCHING ROOM



BRAZING ROOM WATER SYSTEM